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AURORA BOREALIS.

It is much to be regretted that many of the phenomena of nature pass by unnoticed, and that still more, though seen, are left unrecorded, simply because they have no perceptible bearing on the pursuits or enquiries of those who notice them. Atmospherical phenomena are not exempt from this neglect: hence it is that man, who has for some thousands of years breathed life in the air, who has grumbled in wet, and toiled in dry, who has shivered in cold, and panted in hot weather; who has, in short, experienced in often repeated change every variety of season, still knows but little of the operating causes; even less of the extent and connexion of effects produced; and now, after so great a lapse of time, is obliged to prepare for the exercise of his awakened attention by a laborious collection of facts. The phenomenon, however, more peculiarly under consideration, is in the northern regions too brilliant and beautiful, contrasted as its vivid coruscations are with icy dreariness, to escape notice; but in this more temperate clime, neither is its appearance so frequent, its light so bright, or its cheerful influence so needed, as to break the attraction of real flames within doors, and cause the well-warmed dozers to quit their genial glow, and contemplate the flickering mockery of those without. By some, therefore, the Aurora is merely known as the reported ornament of other skies, whilst by numbers it is deemed so rare a visitor of these, that it would be silly to watch for its appearance. The month of September usually affords an opportunity of observing the Aurora Borealis, as it did on the nights of the 6th and 14th; but before referring to these particular cases, a few remarks may well be devoted to the nature of the phenomenon in general. The constant connexion of the Aurora with the magnetic pole, naturally led to a suspicion that it was itself the result of magnetism. The observations of Arago have strengthened this suspicion, by showing that the needle is strikingly affected by the existence of Aurora, even remote from the place of experiment. It may be added, that other observations, though not so strongly establishing the latter point, tend to prove that there is often a gradual alteration of the intensity of the earth's magnetic attraction, as shown by the dipping needle, sometimes in increase and sometimes in diminution, prior to the appearance of Aurora, after which it reverts, either suddenly or by slow degrees, to its former state; a fact which will (when confirmed by future and long continued observations,) be even more important towards investigation than the sudden and violent perturbations noticed by Arago. Observation then, or in other words, experience, establishes a remarkable and interesting coincidence of existence between the Aurora Borealis and certain variations in magnetic attraction; the actual relation of one to the other it leaves uncertain, since it is even more probable that they are co-existing effects of the same extraneous cause, than that the one is the cause, the other the effect resulting from it. This view of the subject opens a wide expanse of speculative reflection; but we shall restrain, at the present moment, the impulse which would urge us to rush into the tempting field of enquiry; we shall peep behind the veil of nature, but refrain from an attempt to tear it away.

In the progress of human knowledge, nothing is more striking than the gradual elucidation of mysterious combinations and effects: bodies once deemed simple prove compound, and to our surprise, the same element is traced through many substances, which, from the contrariety of their physical or chymical properties, seemed to set approximation at defiance. This is peculiarly the case with such of the alkalis and acids as contain oxygen, or to use the language of modern chymistry, in which that element has entered into electro-positive or electro-negative combination. Nor is it in the ruder and more tangible forms of matter alone, that discovery may be expected to reward investigation. Those essences, as it were, caloric, light, electricity, subtle in nature, but powerful in force, are as yet known to us only in the laws or modes of their action. The mystic obscurity of one of these, electricity, has within a few years been partially dispelled, whilst a new science, electro-magnetism, has sprung up from its ascertained and singular influence on magnetised bodies. In the electric fluid, indeed, we already see a force capable of producing in matter attraction or repulsion, of inducing or destroying magnetism, of creating when the course of its currents is properly regulated, rotation in magnetised bodies. Is it then presumption to anticipate that to this one force, whether it be connected with matter or not, may hereafter be ascribed, gravity; the magnetism of the earth and other heavenly bodies; their movements in their orbits, and their rotations on their axes. Stopping short, however, of this grand result, we may at least suggest the analogy, either seeming or real, between some of the experiments of electro-magnetism, and the magnetic phenomena of nature. Looking at the earth as a huge magnet revolving on its axis, we see in the Aurora Borealis indications of those electric currents which the chymist would primarily create in order to induce rotation in the magnet. The exhibition of light is conformable to our knowledge of electricity, whereas the most powerful combinations of magnets yields not a gleam; nor is the usual objection, "that the electrometer is unaffected by Aurora," of avail, since we know that the electric fluid may be developed with powers amply sufficient to affect the chymical relations of bodies, but yet of tension inappreciable by the common electrometer, or by any electrometer except the magnetised needle. The objection then supports the view taken, since in the needle we have an electrometer the deflections of which indicate the electric cause: and that whether the deflections are directly due to the action of the Aurora or electric currents; or indirectly by the alteration in the magnetic attraction of the earth. We now leave the theory of the subject, trusting that the electric spark may one day kindle a flame, in the light of which knowledge of these now occult things, may shine out and be apparent to all.

The Aurora appears in this country under two distinct forms—a lofty arch of light contracted at its extremities, and lifting its centre high in the heavens, often indeed within a short distance of the zenith; or a low arched bank of light, from which luminous rays, or rather parcels of rays, dart at intervals into the sky, ascending to a great height; sometimes even the bank of light is wanting, and the luminous rays spring at once from the dark horizon. The Aurora of the 5th was of the second order. The bank of light formed a low arch, having a dark nucleus, and the streamers issuing either from the very centre of the dark space, or (and more frequently) from the periphery of the arch, darted with vivid brilliancy into the upper regions, whilst, as if to contrast with their glow, one solitary linear cloud stretched its dark length across the sky, and pointed its apex at the very focus of light. In the Aurora of the 14th, the bank was wanting, the streamers were few and bulky, their light diffuse and weak, yet towering ambitiously into the sky, they attained an elevation of about seventy degrees. The first was observed near Westport, the second at Newport, Tipperary. By the Aurora itself, the weather can scarcely be influenced, but considering it as an indication of the action of electricity, other effects might reasonably be expected to follow the same cause. A limited experience leads to the opinion that a considerable portion of fine weather may be expected at the time of, or immediately after the appearance of the lofty arch, but that the streaming Aurora is usually followed by unsettled and variable weather. Such has been the case as regards the last two; occasional gleamings, fine and cold, violent gusts of wind, frequent fogs on the hills, heavy bursts of rain and hail, have constituted the character of the weather up to the present day, the 20th; and on the 16th, the icy drops at an elevation of 2300 feet were a quarter of an inch in diameter. We now stop, and feeble as assuredly has been this effort to penetrate the mysteries of nature, it may yet mark out a channel by which other and more potent streams may flow, wearing away the rock which now closes the entrance to her temple, opening to the expectant votary its sublime recesses, and admitting the willing worshipper to its sacred shrine. J. E. P.

FINE ARTS.

Landscape Illustrations of the Waverley Novels, Parts IV. and V. Tilt, London.

Commend we the landscape illustrations before all others; they are the real Simon Pure. In historical illustrations, as they are called, the artist gives us his own imaginings as realizations of the author's; but as no two individual minds will, from a verbal description, create the same picture, the reader will consequently be presented with an illustration differing from that which he has previously formed in his own mind, and will be apt, therefore, to feel more or less of disappointment, no matter how meritorious may be the design of the artist; and this disappointment will be sanctioned by the consciousness of the painter having no more truth or authority for his conception than the reader can have for his own. In the landscape illustrations it is quite otherwise: in these we feel no disappointment. The scenes which the author can but rudely sketch, and the reader still more imperfectly imagine, are brought before us with all the charms of picturesque effect, and are viewed with delight, from a consciousness of their truth and reality.

We have been led into these observations by a sight of the last two parts of the Illustrations of the Waverley Novels, the preceding parts of which we did our best to recommend to the especial notice of the public. The parts recently published are not less deserving of praise. The subjects are all more or less interesting, and treated with feeling and ability worthy of the great landscape painters of the British school. They are also exquisitely engraved, combining great force with extreme delicacy, and high finish with artist-like freedom. It is unnecessary to criticise them in detail, when all abound in excellence; and we shall only add, that we know of no greater treat recently offered to the true lovers of nature and of art, than that afforded by the Landscape Illustrations of the Waverley Novels.